National University – Sudan

Faculty Of Engineering & Architecture

Academic year 2019/2020 – semester 4 - Tutorial No.(3)

Batch (3) Civil Engineering

Name:……

Index No:……

Course Title : Numerical Methods

Course Code MAT221

Date: /12/2019 Duration: 2 hour Time :10 :00- 12:00

solve the following systems using gauss elimination method

$$x_1 + 2x_2 - x_3 = 4$$
$$2x_1 - 3x_2 + x_3 = -1$$
$$5x_1 + 7x_2 + 2x_3 = -1$$

$$
\begin{aligned}
x_1 + 2x_2 + 3x_3 &= 5 \\
2x_1 + 5x_2 + 3x_3 &= 3 \\
x_1 + \phantom{5x_2 +{}} 8x_3 &= 17
\end{aligned}
$$

$$2x_1 + 4x_2 - 2x_3 = 2$$
$$4x_1 + 9x_2 - 3x_3 = 8$$
$$-2x_1 - 3x_2 + 7x_3 = 10$$

$$
\begin{aligned}
x_1 + x_2 \qquad\qquad + 3x_4 &= 4 \\
2x_1 + x_2 - x_3 + x_4 &= 1 \\
3x_1 - x_2 - x_3 + 2x_4 &= -3 \\
-x_1 + 2x_2 + 3x_3 - x_4 &= 4
\end{aligned}
$$

$$
\begin{aligned}
x_1 - x_2 + 2x_3 - x_4 &= -8 \\
2x_1 - 2x_2 + 3x_3 - 3x_4 &= -20 \\
x_1 + x_2 + x_3 &= -2 \\
x_1 - x_2 + 4x_3 + 3x_4 &= 4
\end{aligned}
$$

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